

## **REMARKS**

Applicant thanks the Examiner for taking the time to review Applicant's invention and proposed amendments. Applicant respectfully requests reconsideration and Allowance of Claims 1, 3, 5-7, 9, 10, 12, 14-16, 18, 19, 21, 23-25 and 27, plus added claims 28-62, in view of the amendments above and the following arguments.

Applicant also thanks the Examiner and his Supervisor for allowing the phone conversations. Applicant was NOT attempting to get help in writing his claims, just assist him in determining what wording best communicated the invention, to the Examiner and his Supervisor. It is frustrating to know that I discovered something and then be unable to effectively communicate it to you. I apologize if my enthusiasm became inappropriate in any way. Through these conversations, Applicant sees that he must go the extra mile and sacrifice brevity for thoroughness and leave NO stone unturned. Therefore, I apologize in advance for the length of this reply.

## **35 U.S.C. § 102 REJECTION**

The invention in claims 1, 3, 5-7, 9, 10, 12, 14-16, 18, 19, 21, 23-25 and 27 are rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,711,470 to Hartenstein et al, as in the previous office action.

My Attorney at the time, Mr. Nevin Shaffer, Jr. P.A., inadvertently omitted several words from our August 19, 2005 filing. He can be contacted to verify this issue (850)934-4134. Applicant understands how omitting these words could easily confuse the Examiner and his Supervisor. I apologize for any confusion this has caused. The omitted words have been added and claims 1, 10 and 19 have been amended, in pertinent part "a) at least one pressure sensor per floor on at least two of said

multiple floors; b) a connection means for connecting to the pressure sensors; and c) attaching an analyzer to said pressure sensors for receiving input from said pressure sensors and comparing at least one pressure reading from one floor with another pressure reading from at least one of the other multiple floors of said building and for providing sensor data output", to further separate his invention from Hartenstein, and ALL others. These amendments represent clarifications and do add further limitations to the respective claims and the claims that are dependent on them.

I hereby TOTALLY disagree with the Examiner and his Supervisor's assertion that "the prior art controls pressure". Applicant respectfully replies that Hartenstein **NEVER** claims to compare the contaminants, temperature, humidity or pressure of "one individual floor with the contaminants, temperature, humidity or pressure of another floor", as I claim. **NOR** does **ANY** other patent in the World, claim to "compare at least one pressure reading from one floor with another pressure reading from at least one of the other multiple floors of said building", as I claim. The Whitmore patent number 4,606,228 does not claim this, it discloses a "pressure transducer" which may, or may not, be used to solve a "temperature" problem associated with the myth of "warm air rising" in multiple floor buildings. So, how could Hartenstein, or **ANY** other patent be used to keep this patent at hand, from being granted.

Hartenstein ONLY mentions pressure sensors FOUR TIMES, and then he NEVER says ANY THING about what he intends to do with the pressure data that he retrieves. Applicant fails to see EXACTLY how this limited use of pressure sensors by Hartenstein, or Whitmore's "pressure diaphragm" claims, could EVER be considered as establishing the "state-of-the-art" for an **"INTERNAL BUILDING PRESSURE APPARATUS AND METHOD"**, as I claim, under the requirements of 35 U.S.C. § 102. I will COMPLETELY address the Whitmore patent, later in this filing.

### **35 U.S.C. § 103 REJECTION**

Claims 4, 8, 13, 17, 22 and 26 are rejected under 35 U.S.C. § 103, second paragraph, as being unpatentable over U.S. Patent No. 6,711,470 to Hartenstein et al, as in the previous office action.

5 I am NOT attempting to patent the tool of "averaging". Many others before me have used it. I am just employing it as a tool, to improve my resolution. The real truth is that my actual field experience has taught me that when I was operating a floor of a building at a "positive" pressure, it is BEST accomplished by ignoring all but the "lowest" (minimum) pressure  
10 reading (the one nearest to zero, or even below), from the floors involved. I would then ONLY use this "lowest" pressure reading to manipulate the building's HVAC system to achieve my "desired" goal on one of the floors.

I also discovered that this "lowest" pressure, CONSTANTLY, "moves" from one "particular floor" to another; and from one "particular portion of  
15 a floor", to another; and from one "particular wall of a floor", to another, and it could end up being within a wall cavity, within a floor cavity, within a ceiling cavity, or within some other interstitial space. Inversely, for "negative" pressure buildings I would simply use the "highest" (maximum) pressure reading (the one furthest away from zero) I received, to  
20 manipulate the building's HVAC system. But I do not want to give up "averaging" as a tool when applying my ideas, it may just prove to be an invaluable "tool" in the future. NEITHER Hartenstein, NOR Whitmore, discloses using ANY pressure measurements/readings, for ANY of the above reasons, or purposes. So EXACTLY how do they, or ANY OTHER  
25 patent establish the "prior art" for the invention, I am claiming, per the guidelines of 35 U.S.C. § 103, second paragraph.

This is the primary NON OBVIOUS reasoning behind using the words "a group including maximum pressure, minimum pressure and average pressure and pressure in-between maximum and minimum for a particular

5 floor, a portion of a particular floor and the building as a whole". Plus, it is also the primary reasoning behind the NON OBVIOUS locations I list in my subject claims, for pressure sensor locations. These are NEW, NOVEL and NON OBVIOUS reasons for my pressure sensor locations, and exactly which pressure reading I choose to use, to manipulate the HVAC system, and represent a dramatic advance in the "state of the art" in "internal building pressure measurement and control".

10 I hereby declare that I have NEVER seen, or even heard of ANYONE ELSE locating pressure sensors where I want to locate them, for the reasons I am employing. Plus, I hereby declare that I have NEVER seen, or even heard of ANYONE ELSE choosing ANY pressure reading from "a group including maximum pressure, minimum pressure and average pressure and pressure in-between maximum and minimum for a particular floor, a portion of a particular floor and the building as a whole", as I claim.

15 Hartenstein NEVER discloses the above way to use his pressure readings, NOR does he disclose ANY reasons for the locations of his "pressure sensors", when he mentions them ONLY FOUR TIMES. So, EXACTLY how can Hartenstein, or ANY other patent in the World, be used to keep this patent at hand from being granted. There is NOT another patent that discloses the above reasons, so the "subject matter as a whole" and even in the "minutia" of this patent at hand are NEW, NOVEL and NON-OBVIOUS, and should be granted. Applicant respectfully fails to see how this patent at hand can be rejected under 35 U.S.C. § 103, second paragraph, in light of this argument.

## 25 **STATUS OF THE CLAIMS**

Claims 1, 3-10, 12-21 and 23-27 remain pending in this case.

New claims 28-62 have been added, to further disclose the invention.

Claims 1, 10 and 19 have been amended, in pertinent part "a) at

least one pressure sensor per floor on at least two of said multiple floors; b) connecting to the pressure sensors; and c) an analysis means connected to said pressure sensors for receiving input from said pressure sensors and comparing at least one pressure reading from one floor with another pressure reading from at least one of the other multiple floors of said building and for providing sensor data output". These amendments represent clarifications and add further limitations to the respective claims.

Claims 28-62 were added to this application to include ideas originally taught by the invention, and described on page 3, lines 16-21; page 4, lines 1-3; and page 14, lines 8-17, of the initial application.

#### **APPLICANT'S RESPONSE TO EXAMINER'S "RESPONSE TO ARGUMENTS"**

I hereby respectfully and TOTALLY disagree with the Examiner and his Supervisor's assertion that "pressure is dependant upon the differences in temperatures from one floor to the next, or from one room to the next". I can NOT imagine how the teachings of Jacques Charles on temperature and pressure, could possibly be used to disapprove the patent at hand. I personally can NOT find a SINGLE formula that will produce a significant pressure effect in light of the 6 to 15 temperature differences that occur within a building. Especially when humidity is controlled to 50%, as in a standard building. Perhaps you can enlighten me with the specific formulas you are referring to. I hereby assert that the pressure generated by the "buoyancy factors" of "warm air rising" is INSUFFICIENT to "move" air through "sealed" FIRE floors, or EVEN "closed" elevator doors.

Or, if by these words, you are suggesting that temperature requirement differences "from one floor to the next, or from one room to the next", which results in "different" amounts of air being introduced into these various areas, SOMEHOW, MYSTERIOUSLY leaves ALL of the different spaces involved, at a UNIFORM pressure. THEN I ALSO TOTALLY DISAGREE!!

This Examiner and his Supervisor might just be operating under the prevalent MISCONCEPTION that the "internal" areas of buildings reside at a UNIFORM pressure, NATURALLY, regardless of the number of floors involved. Or, your misconceptions of the problems associated with "internal" building pressure, have left you unable to see the Applicant's solution, as stated on page 2, lines 15-21, plus page 3, lines 1-6, along with the aforementioned added paragraphs, of my application. I humbly and respectfully request that you consider the argument made in this filing.

As far as HVAC systems and standard temperature control systems leaving multiple floor buildings at a UNIFORM pressure, I have discovered this to be a TOTALLY INCORRECT assumption. The REAL truth is that putting air into the various areas of the various floors of a multiple floor building, based solely on a temperature and/or humidity basis, will actually generate the very "errant pressure bubbles", that the Applicant has discovered within buildings through the application of his granted patents and is now attempting to correct, with the patent at hand. When you link these "errant pressure bubbles" with the SEVERE, "NEGATIVE", pressures of the upper floors, as described previously; contaminants, odors, humidity, gases, biologicals, viruses, bacteria, mold, mildew, diseases, flu and yes even temperatures, WILL "move" uncontrollably within the building, from floor to floor, and from a portion of a floor to a portion of another floor, in patterns that NO ONE could EVER predict, even with the MOST SOPHISTICATED mathematical models. The ONLY way to overcome these pressure forces, is to "measure", "analyze" and "control" them, EXACTLY as I am claiming, ONE FLOOR AT A TIME. The "delay" involved with the SINGLE interior sensor employed by ASHRAE on multiple floor buildings, dooms their scheme to FAILURE.

How else did the sars virus get from the fourth floor to the eleventh floor of a 33 floor apartment building in Hong Kong? The virus "traveled"

through a "wall chase", which is why I want to put pressure sensors in cavities and other interstitial spaces of multiple floor buildings. I ask the question, "why didn't the virus precipitate out on one of the other 31 floors, than the eleventh"? It was because the eleventh floor had the lowest pressure in relationship to the fourth floor, due to an unpredictable "errant pressure bubble". I have seen this very occurrence in MANY multiply floor buildings, when I was diagnosing humidity problems. I have seen air and humidity move from the fifth floor of a building to the third floor, through an interior "wall chase", completely ignoring the fourth floor. Why, because the third floor had the lowest pressure in relationship to the fifth floor. Contaminants, odors, humidity, gases, biologicals, viruses, bacteria, mold, mildew, diseases, flu and temperatures, could have been moved by this "errant pressure bubble", JUST AS EASILY. This is why I want to compare the pressures of non adjacent floors.

I hereby declare that I learned most of what I am teaching about "building pressure", through humidity research. It is almost impossible to "see" the minute pressure differences that I saw, when only taking "hand held" pressure readings. Yet, through the thousands of digital dewpoint readings that I took in buildings, I began to notice how humidity was being "uncontrollably" moved around within the building, including from floor to floor, and a portion of a floor to portion of another floor, by what I began to call, "errant pressure bubbles". I hereby declare that I personally owned approximately \$12,000 worth of very sophisticated humidity and pressure test equipment, that I subsequently lost to hurricane IVAN, on September 15, 2004, along with the two year old work truck that housed them. The simple truth is, that a \$2,000 digital dewpoint meter with a four foot long probe, gave me a \$100,000,000 education on "internal building pressures", and taught me things that NO ONE, HAS EVER KNOWN BEFORE. It helped to live and work in the MOST humid area of America, based on

100 years of compiled weather data.

5 Through the above argument, the Applicant TOTALLY DISAGREES  
"that conventional buildings control pressure". Plus, Applicant TOTALLY  
DISAGREES that "the HVAC system then becomes a pressure regulator, as  
it maintains the temperature in various rooms of a building", for the SAME  
reasons. Applicant wants to make it VERY CLEAR that the opposite is TRUE.  
Conventional buildings DO NOT control pressure. NEITHER thermostats,  
10 NOR HVAC systems are, CURRENTLY, an adequate pressure regulator  
within multiple floor buildings. The simple FACT is, that NEITHER a standard  
HVAC system, NOR a standard building control system could EVER  
"control" the pressures on the separate floors of a building, WITHOUT the  
addition of Applicant's patent at hand, and/or the Applicant's other  
15 granted patents. The Examiner and his Supervisor are simply incorrect. An  
amusing fact is that the article supplied by the Examiner, and written by  
Mr. Lstiburek, TOTAL refutes this very assertion by the Examiner, "that  
conventional buildings control pressure".

20 The Applicant states respectfully that the Examiner has made  
TOTALLY incorrect statements such as "conventional buildings control  
pressure, since pressure is dependant upon the differences in  
temperatures from one floor to the next. The applicant should note that  
the HVAC system then becomes a pressure regulator, as it maintains the  
temperature in various rooms of a building." I ask the simple question,  
"how does this temperature control or HVAC system "measure" much less  
"control/ regulate" the air that "infiltrates" and "exfiltrates" through the  
25 "skin" of the building", as described in the added paragraphs to the  
"BACKGROUND OF THE INVENTION"? Applicant "googled" over fifty  
internet articles looking for one that is teaching what he is claiming. I did  
find the Whitmore patent number 4,606,228 that I will fully address later in  
this reply, but it does NOT claim or teach what I claim and teach.



Applicant now respectfully request that the Examiner and his Supervisor "google" "building pressure and its effect on indoor air quality" and read several of those 1,970,000 articles. MOST of them refute the assertion by the Examiner and his Supervisor, that the "HVAC system then becomes a pressure regulator". If the HVAC system is such a **GOOD** pressure regulator, then there would NOT be so many buildings with pressure problems.

For the THIRD time I reply in detail. Webster's dictionary defines "regulate" as: (1a) "to govern or direct according to rule", (1b) "to bring under control of"; (2) "to bring order, method, or uniformity to"; (3) "regulate the pressure of a tire". Webster's describes "control" as, (1a) "to check, test or verify by evidence". Does this Examiner and his Supervisor actually believe that a thermostat truly "regulates" and/or "controls", "building pressure", per Webster's. HOW? Also, how does the thermostat "bring order, method or even uniformity" (Webster's number '2' "regulate" definition) to the pressure of a building, much less a specific floor of a multiple floor building, or to ANY part of the building, as I claim.

Especially when the Examiner's own words include "the change in temperature, which is controlled by the thermostat, **inadvertently changes** the pressure". Plus, I am EXTREMELY interested in this Examiner and his Supervisor explaining to me "EXACTLY how does the thermostat "measure and compare at least one pressure reading from one floor with another pressure reading from at least one of the other multiple floors of a building", as I claim? Additional, EXACTLY what "evidence" (Webster's number '1a' "control" definition) does the thermostat provide that the desired pressure has been achieved, as I claim, on a particular floor, a portion of a particular floor, or ANY WHERE in the building, for that matter?

I am not trying to simply "change" building pressure, as the Examiner and his Supervisor are suggesting. "Change" as defined by Webster's is: (1a) "to make different in some particular"; (1b) "to make

radically different; (1c) "to give a different position, course or direction". This sounds more like you are saying that the thermostat will make the pressure "different" on the various floors, which is EXACTY what I have discovered and the above mentioned 1,970,000 internet articles, verify. It also sounds like a thermostat that "**inadvertently changes**" pressure, could NEVER "bring order, method, or uniformity to" (Webster's number '2' "regulate" definition) the pressure of the various floors of multiple floor buildings, by making them "different". Please clearly explain how you say the thermostat will ACCURATELY "control" or "regulate" the pressure of a floor, or the pressure ANY WHERE in the building, to a desired pressure, BASED on these definitions by Webster's. My invention at hand will ACCURATELY "control/regulate internal building pressure", as I claim. Another confusing and incorrect method employed by this Examiner, is the way you moved from the assertion of "control" and "regulator" to "change". Per the above Webster's definitions of these three words, please tell me how can you interchange them? This just confuses the situation, when we BOTH should be striving to clarify this situation.

Should we all now just "regulate" the pressure of our tires (Webster's number '3' "regulate" definition) by "**inadvertently changing**" the tire's pressure. Or should we use "temperature" as a way to "regulate" our tire pressure, as this Examiner and his Supervisor assert. I know we measure our tires when they are "cool", but in this context, "cool" is a "state", NOT a temperature. A lot more people will die on our highways, if we begin to implement the logic proposed by this Examiner and his Supervisor. NO, the way to "regulate" the pressure of our tires is the same way we have done it for the past 100 years. By using a tire "pressure" gauge (pressure sensor in my patent) to "measure" the "pressure" of a tire, then compare that pressure measurement to what is desired (the analyzer in my patent) and then "control/regulate" the "pressure" of the tire by adding or removing

air (the controller and HVAC systems in my patent) and then "measuring" again and repeating the process until the "desired pressure is obtained" (the pressure sensor, analyzer, controller and HVAC system in my patent).

5 This is EXACTLY what I claim to do, per floor of a building, to measure internal building pressure with pressure sensors on at least two floors and compare the measurements with an analyzer and then "regulate/control internal building pressure" on at least one floor, by adding or removing air using a controller and the HVAC system, and then repeat the process until the "desired internal building pressure is  
10 obtained", by using ALL of these components together. I have NEVER claimed any desire to just "change", or make the "internal pressure of a building" simply "different", as you are suggesting. Interestingly, Whitmore's scheme will ONLY make "pressures" of the various floors "different", by "inadvertently changing" them, and will NEVER  
15 "control/regulate" them, to produce a "desired pressure". as I claim.

This "desired pressure is obtained" through manipulation of the existing or new building HVAC/Mechanical system to add or remove air, from EACH floor involved, in NEW AND NOVEL WAYS. WITHOUT sacrificing space temperature or humidity control. I have done EXACTLY this on  
20 separate projects with Johnson Controls and Honeywell Controls (two of the LARGEST Controls Contractors in America) and I can provide contact information with these Control Contractors and the Industrial Plants involved. Since NO ONE, including Whitmore and Hartenstein, are currently "controlling" the "floor to floor pressure relationship of buildings,  
25 based on directly measuring their pressure relationship", as I claim, THERE IS NO PRIOR ART INVOLVED, so I SHOULD NOT BE MADE TO LIMIT MY PATENT AT HAND BY DETAILING THESE METHODS OF CONTROL, as this Examiner and his Supervisor request. This is PRIORITY INFORMATION that the Applicant has spent valuable time and money to discover, and he should

NOT be forced to reveal them in this patent application.

I will say that it is TOTALLY IMPRACTICAL to "pump" air from one floor to another, in an attempt to solve the problem, as Whitmore alludes. This would simply cause as many problems as it solved, if not MORE. It would ADD another variable to an already "dynamic" situation and "slow" down the process into a FAILURE mode. Since the amount of "exfiltrated" air varies DRAMATICALLY with height, storms, how "leaky" the building is, wind turbulence caused by surrounding structures, etc...; the amount of air required to pressurize the building also varies DRAMATICALLY, SECOND BY SECOND. If I was to draw air from one floor and move it to another as Whitmore "theorizes", I know the other variables involved would leave the floors involved, at ANYTHING but the "desired pressure". To "pump" more air out of the already NEGATIVE upper floors, will ONLY exacerbate an already bad situation. Plus, Whitmore's scheme would end up "pumping" contaminants, odors, humidity, gases, biologicals, viruses, bacteria, mold, mildew, diseases, flu and temperatures between the floors involved. THIS IS EXACTLY WHAT ACCURATE "INTERNAL BUILDING PRESSURE CONTROL", MUST PREVENT, NOT ENCOURAGE. Additionally, the duct used to "move" this air from floor to floor would in turn, act as a conduit and allow air to "uncontrollability" move between the floors involved, carrying contaminants, odors, humidity, gases, biologicals, viruses, bacteria, mold, mildew, diseases, flu, temperatures, fire and smoke, with it.

Plus, just SIMPLY "pumping" air around within the same multi-floor building "vessel", may solve a "temperature" problem within a "vessel", BUT it will do NOTHING to SOLVE a SINGLE "pressure" problem within the "vessel". To SOLVE a "pressure" problem within a "vessel", air MUST be either "added" or "removed" from the "vessel", and NOT just SIMPLY "pumped" around within the SAME "VESSEL". Would simply "pumping" air around within a tire that has low pressure, solve the problem? NO.

As stated in previous arguments of this filing, the current FIRE CODES, establishes each floor as a "SEPARATE VESSEL", within the larger, multiple floor, building "vessel". So, EACH FLOOR INVOLVED MUST BE MEASURED AND CONTROLLED INDIVIDUALLY, as I claim. The ONLY way to overcome these pressure forces, is to "measure", "analyze" and "control" them, EXACTLY as I am claiming, ONE FLOOR AT A TIME. The "delay" involved with the SINGLE interior sensor employed by ASHRAE on multiple floor buildings, dooms their scheme to FAILURE, as they "wait" for the pressure differences to equalize. If a particular air handler serves several floors of a building, then those floors would still have to be "measured" individually, but might have to be "controlled", as group. If possible, EACH floor should be "controlled" individually. The "shared" air handler and it's associated ductwork could allow air and pressure to "move" between the floors involved. This would not be a difficult task, for the "analyzer" and "controller" involved, to "learn" how to overcome through programming.

The "building pressure control" method that I have used with GREAT effectiveness and success is, to "vary" the amount of "return air" and "outside air", SIMULTANEOUSLY, from the same chosen "pressure measurement". This method is also the FASTEST and MOST ACCURATE. The "return air" and "outside air" are "varied" at the same time, with either a motorized "face and bypass" damper arrangement, or two separate motorized dampers, one acting in a "direct" response mode and the other acting in a "reverse" response mode, to the same command "signal" from the pressure controller. To prevent cross contamination between the various floors involved, ONLY NEW, PROPERLY CONDITIONED, OUTSIDE AIR should be introduced to "pressurize", the floors involved, and NOT "used", contaminated air from other floors, as Whitmore "theorizes". "Supply air" is usually based on the temperature design of the building and can NOT be "varied" easily, as this could leave some areas too cold,

or too hot. Thereby, unacceptably sacrificing "temperature control" for "internal building pressure control". Forms of "supply air" manipulation may present themselves in the future, through the practical application of the ideas taught by this patent at hand. I have done over twenty successful isolation areas involving "supply air" modulation that did NOT sacrifice "temperature control" and I prefer not to divulge the methods employed, at this time.

The "air filtration systems" that Hartenstein claims, will NEVER survive the duration of a Chemical, Biological or Radiological attack. We stopped using them for Industrial "SAFE HAVENS" over TEN YEARS AGO, due to their propensity to FAIL, just when you NEEDED them, the MOST. The "scrubber/air cleaning/air filtration" system WILL deplete due to the volume of the attack. The resulting FAILURE ends up allowing the "air filtration system" to "pump" the contaminant DIRECTLY into the building, KILLING, EVERY ONE INSIDE. If you "stop" ALL "outside air" at the onset of an attack, then EVERYONE in the building is condemned to DEATH, as wind and "vapor pressure" drive the contaminant into the building.

I have done over 500, SUCCESSFUL Industrial "gas filtration" projects over the years, so I have a background in the practical application of the technology Hartenstein is employing. I started a business in 1980, FEX ENVIRONMENTAL SYSTEMS, INC., and ran it for three years before selling it, that SPECIALIZED in Industrial "gas filtration" to protect people and equipment. I made enough money in those three years to not work for the next nine years and travel the World. EACH of those Industrial projects also involved "building pressure", we were just NEVER able to ACCURATELY MEASURE or CONTROL "building pressure", but I spent a lot of time and money "trying". Even when I was traveling, I constantly thought about how to ACCURATELY MEASURE and CONTROL "building pressure".

I am left wondering if Hartenstein has ANY practical field

applications of the "filtration systems" he alludes too, or is his patent based solely on "theory". Leaving him with NO experience of the limitations, of the system he has patented, and expecting to save lives when needed. The time LOST in detecting a deadly situation and then beginning remediation, WILL result in lost lives. Based on the standard 4 air changes per hour, employed in standard HVAC design, it WILL take 30 minutes for the Hartenstein scheme to BEGIN to work, after a Chemical, Biological or Radiological attack begins. My scheme will be ready to handle an attack EVERY SECOND, OF EVERY MINUTE, OF EVERY DAY, WITHOUT ANY TIME LOST TO DETECTION, OR ACTIVATION. I personally think that our Government, wasted the money it paid Hartenstein for his "scheme". It is out dated.

In mid 2003, ASHRAE, held an INTERNATIONAL tele-conference on how to protect buildings and their occupants from Chemical, Biological and Radiological attacks. I signed into this conference on my laptop. This conference determined that the NUMBER ONE way to achieve the desired protection was through "ACCURATE BUILDING PRESSURE CONTROL". Hartenstein FAILED to choose the correct variable, to control.

"Outside air", MUST be drawn from a source at LEAST 75 FEET off of the ground (I base this height on EPA data that I use for Industrial Projects), if it is to provide protection, WHEN NEEDED. Simple 95% efficient particulate filters, regularly maintained, are ALL that are required, and they WILL last the duration of the attack and can be easily replaced afterwards.

If we are to design buildings to withstand Chemical attacks, then a 0.10 inch water gauge of "positive" building pressure, is ALL that is needed. I have 25 industrial buildings operating at this pressure and implementing my granted patents, EVERY SECOND, OF EVERY MINUTE, OF EVERY DAY, in accordance with NFPA 496 requirements, TO PREVENT EXPLOSIONS, without ANY "filtration systems", as Hartenstein claims. 0.10 inch is selected because this is all that is needed to prevent the entry of

“deadly” and/or “explosive” gases (ammonium, chlorine, etc..). The highest “vapor pressure” that ALL “deadly” gases generate, produces a maximum “driving force” of around 850 FPM. In other words, when a “deadly” gas is released, it will strive to reach equilibrium within it’s new environment at a maximum of 850 FPM, based on BOYLE’S LAW. The applicable BERNOULLI formula for velocity pressurization is: the square root of the pressure differential, multiplied by the constant 4005, will provide the velocity that air will move from the “high” pressure “internal” area, towards the “low” pressure “outdoor” area. The square root of 0.10 inches water gauge is 0.3162277, multiplied by 4005, means that air will “leave” our 0.10”, “positive” pressurized buildings at 1266 FPM. This means that the 850 FPM “deadly” gas CAN NOT enter the building when faced with air that is “leaving” at 1266 FPM. The 416 FPM (48%) EXTRA “outward” velocity is for safety, to assure protection and allow the “building pressure control” system time, to account for wind fluctuations.

I have NEVER operated a building at more than a 0.20 inch water gauge “positive” pressure and I do not see any reason why a higher “positive” pressure than 0.10 inch water gauge, would EVER be required. I have read very little about “nerve gas”, but what I have read leads me to believe that it’s “driving force” is only around 500 FPM, due to the chemicals involved. Biological attack elements have NO motility, so wind velocity is the only challenge to overcome and prevent their entry into a building. The same is true for a Radiological attack, other than for the explosive effect of the bomb itself.

I can provide references where I did keep an Industrial Project at a 0.20 inch “positive” pressure with my patented system and we almost killed a maintenance worker when he opened the entry door. It flew open so fast, that he was almost thrown off of a two story entry balcony. At a 0.20 inch “positive” pressure, air is “moving” outwards at 1791 FPM (20



5 MPH). The Whitmore patent mentioned ONLY being able to measure 1.0 inch to 10.0 inch pressures, this would be TOTALLY impractical as it would "move" air outwards at velocities from 4005 FPM (45 MPH) (1.0") to 12,665 FPM (144 MPH) (10.0"). This would eventually dislodge exterior windows, blow open exterior doors, throw people down stairways, prevent proper air handler operation, create new leaks in the "skin" of the building, do the same between floors and cause MANY other problems that PREVENT accurate "building pressure control". Whitmore does NOT understand "building pressure", making his "theory" simply, IMPRACTICAL.

#### 10 APPLICANT REPLIES TO INTERNET SEARCH BY EXAMINER AND SUPERVISOR

15 The Barcol-Air data supplied by the examiner, has been reviewed and is simply a standard "duct static-pressure control system" as described fully in Chapter 46, page 2, and shown in Fig. 5 on the same page of the 2003 ASHRAE Applications Handbook, please see attached exhibit T (page 83). This ASHRAE drawing is EXACTLY like the Barcol-Air drawing supplied. This is in NO way what the Applicant is claiming.

20 The name Barcol-Air is derived from the old Barber Coleman Company. I have done many "pressure control" systems with Barber Coleman over the years, including several Hospitals. In fact I buy averaging and high-low ("maximum-minimum") select "relays" from the local Barber Coleman/Barcol-Air Representative, to use on my patented "building pressure systems". Barber Coleman NEVER was, and Barcol-Air is currently NOT, actively involved in **DIRECTLY** measuring "internal building pressure". Their background for the past fifty years is in "air control".

25 They manufacturer and sell very accurate "flow measurement and control systems", NOT **DIRECT** "internal building pressure" measurement and/or control systems, as I claim. Barcol-Air is simply using their extensive background in "flow measurement and control" in a COMMON and STANDARD "flow tracking" scheme, that SIMPLY involves balancing supply

air flows to match (neutral space pressure), or exceed (positive space pressure), or be less than (negative space pressure) the exhaust air flows plus return air flows, to control space pressures. They do NOT include ANY "internal space" pressure sensors, as Applicant claims.

5 Barcol-Air is simply adding pressure sensors in the supply air ducts, to assure that the supply volumes are stable and can be accurately measured. These systems ALWAYS fail to accurately determine "internal" building pressure because they NEVER know the "Infiltrated" or "exfiltrated" air "flows", that enter through the building's "skin".

10 Applicant's current invention ACCURATELY accounts for these infiltrated and exfiltrated "skin" air "flows". No other known "building pressure measurement or control" system currently does, other than this patent at hand and the Applicant's granted patent numbers 6,584,855 and 6,968,745. This is a simple FACT, that separates me from ALL before me.

15 NO WHERE in this Barcol-Air data does the Applicant find A SINGLE reference to "providing at least one pressure sensor on at least two of the multiple floors"; NOR dose Barcol-Air EVER say "a connection means to the pressure sensors"; and NEVER "attaching an analyzer to said pressure sensors for receiving input from said pressure sensors and comparing at least one pressure reading from one floor with another pressure reading from at least one of the other multiple floors of a building", as I claim. Please show me a single sentence that refutes my assertion.

20 Applicant has reviewed the article supplied by the Examiner and his Supervisor, that is authored by Joseph Lstiburek titled "Air Pressure and Building Envelopes" and again finds NOT A SINGLE reference to "providing at least one pressure sensor on at least two of the multiple floors"; NOR dose Mr. Lstiburek EVER say "a connection means to the pressure sensors"; and NEVER "attaching an analyzer to said pressure sensors for receiving

input from said pressure sensors and comparing at least one pressure reading from one floor with another pressure reading from at least one of the other multiple floors of said building", as I claim. Please show me a single sentence that refutes my assertion.

5 MOST of the time, Joseph ONLY uses hand held pressure measurement devices, such as a "micromanometer", please see exhibit E (page 68) and "portable digital manometers", please see exhibit F (page 69). This means that he has NO way of "connecting to the pressure sensors"; so he could NEVER "attach an analyzer to said pressure sensors  
10 for receiving input from said pressure sensors and comparing at least one pressure reading from one floor with another pressure reading from at least one of the other multiple floors of said building", as I claim.

Even when he is diagnosing problems in a multiple floor building, Mr. Lstiburek NEVER, DIRECTLY, compares "a pressure measurement from one  
15 floor with another pressure reading from at least one of the other multiple floors", as I claim. He does take pressure measurements in some of the SAME interstitial spaces that I want to measure in, BUT he does so on ONLY, ONE FLOOR AT A TIME, AND THEN HE DOES **NOT** COMPARE THAT PRESSURE MEASUREMENT, TO **ANY** OTHER PRESSURE MEASUREMENT FROM **ANOTHER**  
20 FLOOR OF THE BUILDING, as I claim. Please see exhibits G, H and I (pages 70-72), along with figures 10, 11 and 12. Since the pages of this article are not numbered, I will attach copies of referenced excerpts as marked exhibits and as consecutively numbered pages of this document. For brevity, I will not attach copies of his figures.

25 Please see attached exhibit E and F (pages 68-69) along with his figure 6, which shows Mr. Lstiburek measuring the pressure on ONLY ONE FLOOR at a time. And what does he compare this pressure measurement in ALL cases to, OUTDOORS/EXTERIOR, and NOT DIRECTLY to the INTERIOR of ANY OTHER floor of the building, as I claim. Even when he is

“pressurizing the floors above and below the test floors as well at the elevator shafts to identical pressures to the test floor”, how does he determine the pressure of an individual floor? BY “COMPARING” THE PRESSURE OF AN INDIVIDUAL FLOOR TO “THE EXTERIOR”, OR A PRESSURE READING FROM ANOTHER PART OF THE **SAME** FLOOR, AND NOT TO A **SINGLE** PRESSURE READING FROM **ANOTHER** FLOOR. ONLY THEN does he “compare” this “INDOOR-TO-OUTDOOR” relationship to a SIMILAR “INDOOR-TO-OUTDOOR” relationship from another floor. This is NOT what I am claiming. I NEVER claim ANY desire to “compare at least one INDOOR pressure reading from one floor to the EXTERIOR/ OUTDOORS and then compare this “INDOOR-TO-OUTDOOR” relationship to a similar “INDOOR-TO-OUTDOOR” pressure relationship from at least one of the other multiple floors of said building”, as Lstiburek discloses.

This scheme will NEVER work accurately during periods of high winds, or turbulence. I tried this EXACT scheme back in 1998, and this comparison NEVER, ACCURATELY measured how much air is “infiltrating” and “exfiltrating” on “a particular floor”, and especially NOT from a “portion of a floor” NOR the “building as a whole”. Regardless of the type of “corrective” mathematical modeling, I attempted. In other words, turbulence on the exterior sensor, prevents its reading from being ACCURATELY linked, to what is actually occurring on a particular floor, even when mathematical corrections are employed. As confirmed by Mr. Lstiburek on exhibit I (page 72), when he says “Using the exterior air pressure as a reference pressure is **impractical** due to the high variability of the boundary layer air pressure regime”. This is EXACTLY why Mr. Lstiburek says “air pressure measurements were taken... when the wind conditions were **dead calm**”, please see exhibit G (page 70). This patent at hand and my granted patents do NOT suffer from these limitations. I even tried “barometric” pressure sensors in over thirteen FAILED schemes.

I hereby declare that I have successfully compared a pressure measurement from one part of a floor, with another part of the **SAME** floor, OVER 250 times since 1992, as Lstiburek discloses, and I can document them. This method NEVER accounts for "skin", "infiltration" or "exfiltration".

5

Please do not operate under the illusion that I happened on my granted patents, or this patent at hand, EASILY, or SIMPLY. I literally made HUNDREDS of FAILED attempts at "building pressure measurement and control", BEFORE I found the method of "measuring the **dynamic** pressure of air as it flows THROUGH the exterior walls ("skin") of a multiple floor building", that was granted a patent. Similarly, I have endured HUNDREDS of FAILED attempts at an "INTERNAL BUILDING PRESSURE APPARATUS AND METHOD", BEFORE I filed this patent at hand. I tried so MANY variations of BOTH that in 1999, TSI wrote and told me that they did NOT think that accurate "building pressure measurement and control" was possible, and they were tired of wasting valuable resources, "trying". They wrote me and advised that all future attempts at "building pressure measurement and control" would incur an ADDITIONAL, \$4,000.00 "programming cost". But I kept on "trying" and FINALLY found schemes that WORKED, that were NEW, NOVEL and NON-OBVIOUS, then filed patents on what I "learned".

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I hereby declare, that in 1996, I determined that someday, ACCURATE, "BUILDING PRESSURE MEASUREMENT AND CONTROL" would become EXTREMELY IMPORTANT. I made a COMMITMENT to myself, that I would NEVER, STOP, "trying" until I SUCCEEDED. I say it was this COMMITMENT that keep me going during the darkest days, like these. My 18 years of experience at that time, lead me to believe that if anyone could "crack the code on building pressure", as I called it, it could be me. I literally spend hundreds of thousands of dollars in my quest. AND I SAY I HAVE FINALLY SUCCEEDED. I turn to Sir Edmund Hillary for the reason I SUCCEEDED, "ONE CAN NOT IMAGINE WHAT ALL MANNER OF THINGS IN

25

THE UNIVERSE WILL COME TO ONES AID, ONCE ONE IS COMMITTED".

5           Additionally, Mr. Lstiburek is making these "INDOOR-TO-OUTDOOR"  
pressure measurements on individual floors with "blower doors" and  
portable digital manometers, and he NEVER mentions "connecting to the  
10   pressure sensors" from the floors involved; so he could NEVER "attach an  
analyzer to said pressure sensors for receiving input from said pressure  
sensors and comparing at least one pressure reading from one floor with  
another pressure reading from at least one of the other multiple floors of a  
15   building", as I claim. Mr. Lstiburek is simply MANUALLY "analyzing" the  
"blower door" generated pressure on an individual floor, TO OUTDOORS/  
EXTERIOR. Then MANNUALLY "controlling/regulating" the pressure on said  
individual floor, TO OUTDOORS/EXTERIOR, by MANUALLY "comparing" the  
"INDOOR-TO-OUTDOOR" pressure relationship of said individual floor to  
20   the "INDOOR-TO-OUTDOOR" pressure relationship, of the other two floors  
involved. I NEVER claim MANUAL operation in my scheme. It would be too  
slow to EVER produce acceptable results. MANUAL operation serves Mr.  
Lstiburek, because speed is NOT important and at the end of the day he  
ONLY using "pressure measurements" to determine VOLUMES.

25           During another part of the same test, he even goes so far as to  
maintain the floors above and below the floor being tested/measured, at  
exterior pressure by opening all windows and corridor doors, on those  
floors, please see attached exhibit E (page 68). By this procedure Mr.  
Lstiburek is CLEARLY just trying to determine the pressure on ONLY ONE  
FLOOR AT A TIME. THE FLOOR IN THE MIDDLE.

30           After completing BOTH of the above test methods on EACH floor  
INDIVIDUALLY, to OUTDOORS, with this "blower door" arrangement, he  
then takes the VOLUMES the "blower door" measured to pressurize that  
particular floor, to OUTDOORS, "TO **APPROXIMATELY** 25 PASCALS", please  
see exhibit G (page 70) and figures 7 and 9. Then Joseph uses a smoke

pressurization and smoke extraction system, BASED ON THESE VOLUMES, to isolate the floor with a fire on it. In other words, at the end of the day, Mr. Lstiburek is using the VOLUMES he measured with the "blower doors", to keep the floors at different pressures and **NOT, ANY FORM OF A DIRECT** pressure measurement scheme, as I claim. He did go further than ASHRAE, by employing more than a SINGLE, INDOOR "pressure" sensor, but then ONLY "comparing" their readings to OUTDOORS, doomed his ideas to FAILURE. Mr. Lstiburek KNEW this and that is why he ended up using VOLUMES to control pressure, INSTEAD of ANY FORM OF DIRECT pressure measurement, as I claim. This is further proof that my ideas are NEW, NOVEL and NON-OBVIOUS.

More proof of the fact that he compares ALL of his pressure measurements to OUTDOORS, are Mr. Lstiburek's figures 5, 6, 7, 9, 10, 11 and 12. ALL of these drawings show the same pressure relationship for all of the connected floors. Think about it, this would be IMPOSSIBLE if he was comparing the pressures of the various floors to each other, as I claim. If one floor is at a "positive" pressure in a "floor to floor comparison" scheme, then one of the floors next to it, MUST be at a "negative" pressure, by "comparison". This is another reason the pressure transducer Whitmore is patenting would NOT work for "internal building pressure", it is INCAPABLE of producing a "negative" pressure reading. It would produce a pressure reading but then how would you know if that reading was a "positive" floor-to-floor pressure relationship, or a "negative" floor-to-floor pressure relationship, to the "compared" floor. The ONLY time multiple floors are EVER at the SAME pressure is when they are residing at a "neutral" pressure, in "comparison" to each other. The ONLY way ALL of the floors involved could be at a "positive" pressure, or ALL at a "negative" pressure, as Mr. Lstiburek's figures show, is when they are being "compared" to a COMMON pressure, OUTDOORS.

Attached exhibits G, H and I (pages 70-72) and figures 10, 11 and 12 shows Mr. Lstiburek on another project with permanently mounted "pressure sensors". Once AGAIN comparing the "pressure" data that he does receive, TO OUTDOORS, OR TO A PRESSURE READING FROM ANOTHER PART OF THE **SAME** FLOOR, and NOT TO THE PRESSURE OF ANY **OTHER** FLOOR OF THE BUILDING. Again, Mr. Lstiburek NEVER says "providing at least one pressure sensor on at least two of the multiple floors"; NOR dose Mr. Lstiburek EVER say "connecting to the pressure sensors"; and NEVER "attaching an analyzer to said pressure sensors for receiving input from said pressure sensors and comparing at least one pressure reading from one floor with another pressure reading from at least one of the other multiple floors of a building", as I claim. Please show me a single sentence that refutes my assertion.

In ALL of the multiple floor projects in this article, Mr. Lstiburek compares ALL of his individual floor pressure readings, ONLY TO OUTDOORS, OR TO A PRESSURE READING FROM ANOTHER PART OF THE **SAME** FLOOR, NOT TO THE PRESSURE OF ANY **OTHER** FLOOR. Mr. Lstiburek is very active in ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers). In fact, Mr. Lstiburek is an ASHRAE Fellow, recognized for his significant contributions to ASHRAE. This means he is far more likely to follow ASHRAE guidelines, THAN TO QUESTION THEM. He wants to fit in and be a good ASHRAE "company" man.

ASHRAE says that the 'internal' building pressure sensor should ONLY be, COMPARED TO OUTDOORS. A fact I will address in length, later in this reply. Joseph is simply following ASHRAE guidelines and is NOT thinking outside of the ASHRAE "box". ASHRAE, NEVER, ONCE, mentions, discloses, or suggests, "comparing at least one pressure reading from one floor with another pressure reading from at least one of the other multiple floors of said building", as I claim. So, Joseph NEVER does, EITHER. If, Whitmore HAD



established the "state-of-the-art" for an "internal building pressure measurement and control, method and apparatus", then ASHRAE and Mr. Lstiburek would have employed it. BUT THEY DID NOT.

5 Mr. Lstiburek owns a company called Building Science Corporation that is called in to diagnose and solve "problem buildings", as the article provided by the Examiner and his Supervisor, verifies. I hereby declare that I traded emails with Mr. Lstiburek back in December of 2005, after a mutual friend, Mr. Mark Nunnelly, P.E. (we both graduated from Auburn University) introduced us through an email. I hereby declare that I have 10 NEVER communicated with Mr. Lstiburek concerning "internal building pressure", or "building pressures", of ANY kind. I also hereby declare that was the first time I had ever seen his name, or ever heard of him, or ever read ANY of his articles. I have had NO contact with him since then.

15 Mark Nunnelly emailed me an article Joseph wrote about rebuilding homes after hurricane KATRINA. In that article, the article that the Examiner noted, plus over ten other Lstiburek articles that I have now read, does Mr. Lstiburek EVER mention, disclose, or suggest, "comparing at least one pressure reading from one floor of a multiple floor building with another pressure reading from at least one of the other multiple floors of a 20 building", as I claim. I had hoped to establish a friendship with Mr. Lstiburek, but now I am forced to attack his findings, to prove my ideas are NEW, NOVEL and NON-OBVIOUS.

25 The real TRUTH can be CLEARLY SEEN in ALL of Mr. Lstiburek's "Conclusions" and "Rehabilitation Measures" that are shown in exhibits E through O (pages 68-78). He NEVER ONCE discloses implementing floor to floor, "internal building pressure" measurement and/or control to solve the problems he is diagnosing, as I claim. Mr. Lstiburek NEVER ONCE mentions "providing at least one pressure sensor on at least two of the multiple floors"; NOR dose Mr. Lstiburek EVER say "connecting to the pressure

sensors"; and NEVER "attaching an analyzer to said pressure sensors for receiving input from said pressure sensors and comparing at least one pressure reading from one floor with another pressure reading from at least one of the other multiple floors of said building", as I claim. Please show me a single sentence that refutes my assertion.

In ALL of these "**Conclusions**" and "**Rehabilitation Measures**" Joseph is ONLY treating the SYMPTOMS of the problems that he is diagnosing.

Which means he does NOT, COMPLETELY UNDERSTAND THE TRUE PROBLEM, so he has NO idea of how the CURE the problems he is diagnosing. His PRIMARY method of treating "building pressure" problems, is by "SEALING" the building up, better, and better, please see exhibits K, L and O (pages 74, 75 and 78). These measures are just treating the SYMPTOMS of the problem, and ALWAYS fail to CURE the problem, in the LONG RUN. ALL of my patents, including the one at hand, are the COMPLETE CURE for the problems, Mr. Lstiburek is diagnosing. I think that I could help Joe SOLVE some of the building pressure problems, that he is diagnosing, by using fast and accurate "building pressure control" systems as described in this patent and my granted patents. Especially in light of Mr. Lstiburek's own words "Using exterior air pressure as a reference pressure is impractical due to the high variability of the boundary layer air pressure regime", see attached exhibit I (page 72). NONE of my patents suffer from this limitation. Plus, Mr. Lstiburek NEVER mentions DIRECTLY comparing the pressure of the various floors as a reference pressure. Please correct me if I am wrong.

In fact, Mr. Lstiburek makes the point for the Applicant's patent at hand, in his **Abstract** on page one of this article, exhibit A (page 64). Mr. Lstiburek clearly states the "need" for "control of air pressures", but he NEVER says that this can be accomplished by "comparing a pressure reading from one floor with the pressure reading from another floor", as I

claim. In fact, Mr. Lstiburek NEVER says exactly how to control building pressure. He primarily says that the problem is a result of the "interaction of the building envelope with the mechanical system". These words are taken almost verbatim from page 27.6, of the 2005 ASHRAE Handbook on Fundamentals, please see the marked lines on exhibit X (page 87), which once again confirms Mr. Lstiburek's connection to ASHRAE. These words speak volumes about EXACTLY how Mr. Lstiburek thinks building pressure problems occur, "either through the building envelope" or the building's "mechanical system". He completely ignores the "floor to floor pressure relationship" as part of the problem. Through this **Abstract**, and this entire thesis, Mr. Lstiburek completely refutes the Examiner's assertions made in his **Response to Arguments** that were mailed to the Applicant on 03/09/2006, that "the thermostat may be construed as controlling the pressure".

I want to reiterate, the fact, that by putting air into the various floors of a multiple floor building, based solely on a temperature and/or humidity basis, will actually generate the very "errant pressure bubbles", that the Applicant has discovered within buildings through the application of his granted patents and is now attempting to correct, with the patent at hand.

#### **APPLICANT SEARCHES THE INTERNET FOR PRIOR ART CONCERNING AN "INTERNAL BUILDING PRESSURE APPARATUS AND METHOD"**

Applicant feels he MUST search the internet for prior art concerning an "INTERNAL BUILDING PRESSURE APPARATUS AND METHOD", in order to move this patent through the process. Using the method established by the Examiner and his Supervisor, Applicant "googled" the following topics and now list ALL of the articles that could possibly apply, to this patent.

1) I "googled" "building floor pressure" and found the following;

[www.bits-testlab.co.uk/](http://www.bits-testlab.co.uk/) -105k

[www.buildingscience.com/buildingamerica/target.htm](http://www.buildingscience.com/buildingamerica/target.htm)-18k

[buildingairflow.lbl.gov/APT-TMS.html](http://buildingairflow.lbl.gov/APT-TMS.html)-14k

[Link.aip.org/link/?jaeied/8/108/1](http://Link.aip.org/link/?jaeied/8/108/1)

2) I "googled" "building floor pressures" and found the following;

5

[www.bits-testlab.co.uk/](http://www.bits-testlab.co.uk/) -105k

[www.buildingscience.com/buildingamerica/target.htm](http://www.buildingscience.com/buildingamerica/target.htm)-18k

[buildingairflow.lbl.gov/APT-TMS.html](http://buildingairflow.lbl.gov/APT-TMS.html)-14k

[www.eeba.org/tecgbikigy/criteria.htm](http://www.eeba.org/tecgbikigy/criteria.htm)-13k

[Link.aip.org/link/?jaeied/8/108/1](http://Link.aip.org/link/?jaeied/8/108/1)

10

3) I "googled" "building pressure per floor" and found the following;

[www.buildingscience.com/buildingamerica/target.htm](http://www.buildingscience.com/buildingamerica/target.htm)-18k

[buildingairflow.lbl.gov/APT-TMS.html](http://buildingairflow.lbl.gov/APT-TMS.html)-14k

[www.attma.org/ATTMA\\_TS1\\_Issue\\_1\\_March\\_06.pdf](http://www.attma.org/ATTMA_TS1_Issue_1_March_06.pdf)

[192.197.69.104/publications/en/rh-pr/tech/98123.htm](http://192.197.69.104/publications/en/rh-pr/tech/98123.htm)-16k

15

[freepatentsonline.com/4606228.html](http://freepatentsonline.com/4606228.html)-25k

4) I "googled" "building pressures per floor" and found the following;

[www.buildingscience.com/buildingamerica/target.htm](http://www.buildingscience.com/buildingamerica/target.htm)-18k

[buildingairflow.lbl.gov/APT-TMS.html](http://buildingairflow.lbl.gov/APT-TMS.html)-14k

[www.attma.org/ATTMA\\_TS1\\_Issue\\_1\\_March\\_06.pdf](http://www.attma.org/ATTMA_TS1_Issue_1_March_06.pdf)

20

[192.197.69.104/publications/en/rh-pr/tech/98123.htm](http://192.197.69.104/publications/en/rh-pr/tech/98123.htm)-16k

[freepatentsonline.com/4606228.html](http://freepatentsonline.com/4606228.html)-25k

5) I "googled" "controlling floor pressure" and found the following;

[www.hpl.hp.com/techreports/2006/hpl-2006-47.pdf](http://www.hpl.hp.com/techreports/2006/hpl-2006-47.pdf)

[www.cbe.berkeley.edu/underfloorair/exampleLayout.htm](http://www.cbe.berkeley.edu/underfloorair/exampleLayout.htm)-17k

25

[www.cmhc-schl.gc.ca/publications/en/rh-pr/tech/98123.htm](http://www.cmhc-schl.gc.ca/publications/en/rh-pr/tech/98123.htm)-50k

6) I "googled" "controlling floor pressures" and found the following;

[www.hpl.hp.com/techreports/2006/hpl-2006-47.pdf](http://www.hpl.hp.com/techreports/2006/hpl-2006-47.pdf)

[www.cbe.berkeley.edu/underfloorair/exampleLayout.htm](http://www.cbe.berkeley.edu/underfloorair/exampleLayout.htm)-17k

7) I "googled" "floor pressure" and found the following;

buildingairflow.lbl.gov/pubs/WhatToMeasure.pdf  
www.buildingseince.com/resources/walls/air\_pressure\_envelopes  
www.hpl.hp.com/techreports/2006/hpl-2006-47.pdf  
meetings.aps.org/meeting/DFD05/Event/36705-4k  
www.peci.org/ftguide/ftg/Test\_Guidance/ Test/TG12-  
envelope\_Leakage.doc

8) I "googled" "floor pressures" and found the following;  
www.buildingseince.com/resources/walls/air\_pressure\_envelopes  
buildingairflow.lbl.gov/pubs/WhatToMeasure.pdf  
www.hpl.hp.com/techreports/2006/hpl-2006-47.pdf  
meetings.aps.org/meeting/DFD05/Event/36705-4k  
www.peci.org/ftguide/ftg/Test\_Guidance/ Test/TG12-  
envelope\_Leakage.doc

9) I "googled" "individual floor pressure" and found the following;  
www.cbe.berkeley.edu/underfloorair/tacguidelines.htm-28k  
www.oasisopen.org/committees/dwload.php/9598/UseCases.01

10) I "googled" "individual floor pressures" and found the following;  
www.cbe.berkeley.edu/underfloorair/tacguidelines.htm-28k  
www.oasisopen.org/committees/dwload.php/9598/UseCases.01.  
192.197.69.104/publications/en/rh-pr/tech/98123.htm-16k

11) I "googled" "measuring floor pressure" and found the following;  
buildingairflow.lbl.gov/pubs/WhatToMeasure.pdf  
www.ebtron.com/Applications/ebtron\_Applications\_design  
overview.htm-71k

12) I "googled" "measuring floor pressures" and found the following;  
buildingairflow.lbl.gov/pubs/WhatToMeasure.pdf  
www.ebtron.com/Applications/ebtron\_Applications\_design

13) I "googled" "measuring pressure between floors" and found;  
buildingairflow.lbl.gov/pubs/WhatToMeasure.pdf

[www.buildingseince.com/resources/walls/air\\_pressure\\_envelopes](http://www.buildingseince.com/resources/walls/air_pressure_envelopes)

[www.fsec.ucf.edu/bldg/pubs/commission-airflow/index.htm](http://www.fsec.ucf.edu/bldg/pubs/commission-airflow/index.htm)-50k

[www.attma.org/ATTMA\\_TS1\\_Issue\\_1\\_March\\_06.pdf](http://www.attma.org/ATTMA_TS1_Issue_1_March_06.pdf)

[192.197.69.104/publications/en/rh-pr/tech/98123.htm](http://192.197.69.104/publications/en/rh-pr/tech/98123.htm)-16k

[freepatentsonline.com/4606228.html](http://freepatentsonline.com/4606228.html)-25k

[www.homeenergy.org/archive/](http://www.homeenergy.org/archive/)

[hem.dis.anl.gov/eehem/95/951111.html](http://hem.dis.anl.gov/eehem/95/951111.html)-36

[www.kchero.com/rating.html](http://www.kchero.com/rating.html)-28k

14) I "googled" "measuring pressures between floors" and found;

[buildingairflow.lbl.gov/pubs/WhatToMeasure.pdf](http://buildingairflow.lbl.gov/pubs/WhatToMeasure.pdf)

[www.fsec.ucf.edu/bldg/pubs/commission-airflow/index.htm](http://www.fsec.ucf.edu/bldg/pubs/commission-airflow/index.htm)-50k

[www.buildingseince.com/resources/walls/air\\_pressure\\_envelopes](http://www.buildingseince.com/resources/walls/air_pressure_envelopes)

[www.cmhc-schl.gc.ca/publications/en/rh-pr/tech/98123.htm](http://www.cmhc-schl.gc.ca/publications/en/rh-pr/tech/98123.htm)-50k

[www.attma.org/ATTMA\\_TS1\\_Issue\\_1\\_March\\_06.pdf](http://www.attma.org/ATTMA_TS1_Issue_1_March_06.pdf)

[192.197.69.104/publications/en/rh-pr/tech/98123.htm](http://192.197.69.104/publications/en/rh-pr/tech/98123.htm)-16k

[freepatentsonline.com/4606228.html](http://freepatentsonline.com/4606228.html)-25k

[www.buildingscience.com/resources/](http://www.buildingscience.com/resources/)

[misc/pressure\\_response\\_building.pdf](http://misc/pressure_response_building.pdf)

[www.natresnet.org/standards/interpretation-duct\\_test.pdf](http://www.natresnet.org/standards/interpretation-duct_test.pdf)

[www.homeenergy.org/archive/](http://www.homeenergy.org/archive/)

[hem.dis.anl.gov/eehem/94/940908.html](http://hem.dis.anl.gov/eehem/94/940908.html)-34

15) I "googled" "measuring pressure per floors" and found;

[buildingairflow.lbl.gov/pubs/WhatToMeasure.pdf](http://buildingairflow.lbl.gov/pubs/WhatToMeasure.pdf)

[www.fsec.ucf.edu/bldg/pubs/commission-airflow/index.htm](http://www.fsec.ucf.edu/bldg/pubs/commission-airflow/index.htm)-50k

[www.buildingseince.com/resources/walls/air\\_pressure\\_envelopes](http://www.buildingseince.com/resources/walls/air_pressure_envelopes)

[www.cmhc-schl.gc.ca/publications/en/rh-pr/tech/98123.htm](http://www.cmhc-schl.gc.ca/publications/en/rh-pr/tech/98123.htm)-50k

[www.attma.org/ATTMA\\_TS1\\_Issue\\_1\\_March\\_06.pdf](http://www.attma.org/ATTMA_TS1_Issue_1_March_06.pdf)

[www.peci.org/ftguide/ftg/Test\\_Guidance/Test/TG12-](http://www.peci.org/ftguide/ftg/Test_Guidance/Test/TG12-)

[envelope\\_Leakage.doc](http://envelope_Leakage.doc)

192.197.69.104/publications/en/rh-pr/tech/98123.htm-16k

16) I "googled" "measuring pressures per floors" and found;

buildingairflow.lbl.gov/pubs/WhatToMeasure.pdf

www.fsec.ucf.edu/bldg/pubs/commission-airflow/index.htm-50k

www.buildingseince.com/resources/walls/air\_pressure\_envelopes

www.cmhc-schl.gc.ca/publications/en/rh-pr/tech/98123.htm-50k

www.attma.org/ATTMA\_TS1\_Issue\_1\_March\_06.pdf

www.peci.org/ftguide/ftg/Test\_Guidance/ Test/TG12-

envelope\_Leakage.doc

192.197.69.104/publications/en/rh-pr/tech/98123.htm-16k

17) I "googled" "pressure between floors" and found the following;

www.buildingscience.com/building America/target.htm-18k

building airflow.lbl.gov/APT - TMS.html-14k

www.epa.gov/iaq/schools/tfs/guide 2 html-54k

www.info.gov.hk/info/ap/pde/amoy\_e.pdf

18) I "googled" "pressures between floors" and found the following;

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www.epa.gov/iaq/schools/tfs/guide 2 html-54k

www.info.gov.hk/info/ap/pde/amoy\_e.pdf

Applicant found one article out of the thirty listed above and the over 100 others that he read, that needs to be addressed. It is the above listed "freepatentsonline.com/4606228", on United States patent number 4,606,228. I hereby declare that the FIRST time I EVER saw this patent was during this internet search on Saturday, April 29, 2006. Mr. Whitmore NEVER "claims" what Applicant "claims". Previous arguments in this filing include references as to why Whitmore failed the establish the "state-of-the-art" or ANY "prior art" for an" INTERNAL BUILDING PRESSURE APPARATUS AND

METHOD", as I am claiming. The following is a list of reasons why Applicant's patent at hand is NOT anticipated by Whitmore per the requirements of 35 U.S.C. § 102. NOR did patent number 4,606,228 establish the "state-of-the-art" for the "subject matter" taught by the Applicant. So, the patent at hand should NOT be rejected under 35 U.S.C. § 103, second paragraph, for the previous arguments and the following:

1. In column 1, lines 45-50, Whitmore's stated "object of the present invention to provide a small, light and therefore gravity insensitive and inexpensive diaphragm structure for pressure transducers, particularly of the capacitance type, for the measurement of low pressure differentials." This is the "subject matter" of the Whitmore patent and his goal is to establish a "state-of-the-art" pressure transducer that contains his "diaphragm". NOTHING here establishes the "state-of-the-art" for an "INTERNAL BUILDING PRESSURE APPARATUS AND METHOD", as I am teaching.

2. To use Whitmore's own words from column 1, lines 5-25, his "diaphragm" COULD be used in an **"energy management control system"** to make pressure measurements between the air on various floors. All of these measurements are for the purpose of knowing where the air is moving, or trying to move. There may, for example, be openings which will allow air to move between floors of a multi-floor building so as to cause much of the warm air to move to the upper floors. With proper measurement to detect movement a computer may be used to calculate the action necessary from an associated control system to pump air back to the lower floors." Thorough these words he is "theoretically" expanding the uses of his "diaphragm" as an **"energy management and temperature control system"**. AND THAT IS ALL HE IS DOING!! His stated "theory" does



NOT even involve an "INTERNAL BUILDING PRESSURE APPARATUS AND METHOD", IN ANY WAY, SHAPE OR FORM.

5 3. His primary "theory" here is to save energy and provide better temperature control, Whitmore NEVER says a SINGLE word about "building pressure control", of any kind. Interestingly, Whitmore's scheme will ONLY make "pressures" of the various floors "different", and will NEVER "control/regulate" them, to produce a "desired pressure". as I claim.

10 4. He is operating under the illusion that "warm air rising" is a problem in multiply floor buildings. So, IF he had ever tried to employ his "theory" for these uses, he would have FAILED. He does NOT see the COMPLETE PROBLEM, so he has NO CURE for it.

15 5. The REAL TRUTH about "energy savings" and "temperature control" in multiple floor buildings, is that it takes approximately FOUR TIMES as much energy to treat "infiltrated" air that is "sucked/pulled" into a building through it's "skin", as it does to "pre-condition" the outdoor air used to "pressurize" the same building, and PREVENT uncontrolled "infiltration". I  
20 have read over ten articles on this very issue. I have also read several other articles that prove that "uncontrolled infiltration can easily exceed the capability of an HVAC system to manage indoor temperature and humidity and keep the indoor environment within design limits". MANY of the 1,970,000 internet articles prove this. ALL of my granted patents and  
25 this patent at hand WILL SOLVE ALL OF THESE "REAL" PROBLEMS. Whitmore's "theory", would NEVER SOLVE ANY OF THEM, or ANY OTHER "REAL" PROBLEM.

6. Whitmore FAILED to see the TRUE problem, so his scheme NEVER

established the "state-of-the-art" for the patent at hand.

5 7. IF he had established the "state-of-the-art" for an "INTERNAL BUILDING  
PRESSURE APPARATUS AND METHOD", then ASHRAE, Mr. Lstiburek and  
MOST of the people involved in the aforementioned 1,970,000 articles,  
WOULD have employed it. It has been 21 years since he wrote down his  
"theory" and I could NOT find ANYONE that employed ANY form of  
"INTERNAL BUILDING PRESSURE APPARATUS AND METHOD" based on his  
"temperature theory". If ANYONE had employed them, I would have  
10 heard about it, or seen it. "Building pressure" has been my life's work for  
over 28 years.

15 8. Just "suggesting" a "theoretical" use of his "diaphragm" invention, FAILS  
to meet the requirements of 35 U.S.C. § 102, or 35 U.S.C. § 103, to reject the  
patent at hand. NONE of his "claims" disclose the patent at hand and his  
"subject matter" is TOTALLY different. The "learned" individuals of ASHRAE  
have "extraordinary" skill in the field of an "INTERNAL BUILDING PRESSURE  
APPARATUS AND METHOD", not just "ordinary skill" as required to reject  
under 35 U.S.C. § 103, second paragraph, and they NEVER accepted  
20 Whitmore's "theory" as establishing ANY "prior art" concerning "INTERNAL  
BUILDING PRESSURE", and NEITHER do I.

25 9. Whitmore FAILS to provide enough information on EXACTLY what  
pressures he is measuring. His "diaphragm" requires TWO pressure inputs,  
to operate properly. ONE, on EACH side of his "diaphragm". Whitmore  
NEVER says EXACTLY where these TWO inputs come from. IF he used the  
prevalent ASHRAE and Industry standards at the time of his invention, ONE  
input would have been INSIDE a particular floor and the SECOND input  
would have been from OUTSIDE of the building, just as Lstiburek did and

ASHRAE recommended then and STILL TODAY. Whitmore would then "compare" this "INDOOR-TO-OUTDOOR" relationship from ONE floor, to a SIMILAR "INDOOR-TO-OUTDOOR" relationship from ANOTHER floor. This is NOT what I am claiming. I NEVER claim ANY desire to "compare at least one INDOOR pressure reading from one floor to the EXTERIOR/OUTDOORS and then compare this "INDOOR-TO-OUTDOOR" relationship to a similar "INDOOR-TO-OUTDOOR" pressure relationship from at least one of the other multiple floors of said building", as Lstiburek and ASHRAE disclose. IF Whitmore was establishing **THE NEW** "state-of-the-art" concerning "INTERNAL BUILDING PRESSURE MEASUREMENT AND CONTROL", then he should have been MORE SPECIFIC so as to differentiate himself from the then, CURRENT "state-of-the-art". I am the FIRST to CLEARLY and EXACTLY differentiate my ideas from the CURRENT "state-of-the-art" concerning "INTERNAL BUILDING PRESSURE MEASUREMENT AND CONTROL". In light of 35 U.S.C. § 102, and 35 U.S.C. § 103, Whitmore FAILS to establish ANY "state-of-the-art" or ANY "prior art" on the issue of "INTERNAL BUILDING PRESSURE MEASUREMENT AND CONTROL", as I claim.

10. Whitmore refers to "low pressure differentials (such as 1.0" to 10.0" of water full scale)". As pointed out in previous arguments within this filing, these are EXTREMELY HIGH pressure differentials for the floors of buildings. These words speak volumes to his lack of understanding of the TRUE problem, and the CORRECT solution. His "diaphragm" would NEVER have produced a SINGLE usable "building pressure" measurement. As mentioned previously, the MAXIMUM pressure a floor of a building, or the building as a whole should be limited to 0.10" WG, TO OUTDOORS. The "lowest" pressure measurement POSSIBLE with Whitmore's "diaphragm" is 1.0" WG. This is TEN TIMES what's required and FIVE TIMES more than I have EVER seen used in "BUILDING PRESSURE". By the time his scheme reacted,

windows would be damaged, NEW "leaks" would have been "blown" in exterior walls and outward opening doors would NEVER close, thereby "blowing" building pressure. Whitmore's "diaphragm" CAN NEVER BE USED FOR "INTERNAL BUILDING PRESSURE MEASUREMENT OR CONTROL".

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11. The primary GOAL of the patent at hand is to maintain the various floors involved at a UNIFORM pressure in relationship to each other, as I clearly state on page 2, lines 5-13, of my application. The Whitmore "diaphragm" is NOT even capable of measuring ANYTHING near this. This means that I want to maintain ALL of the various floors at a "neutral" pressure relationship. The truth is that 0.00000" WG has proven difficult to maintain, so I will attempt to maintain the various floors at a 0.00005" WG relationship. This relates to 28 FPM of air movement between the floors, which is limited ONLY by current "pressure" sensor technology, which may improve in the future, and I will employ it then. Whitmore's "diaphragm" would NEVER produce a SINGLE useful "pressure" measurement, at these levels. This 0.00005"WG requirement is 1/20,000 (one/twenty thousand) of Whitmore's LOWEST POSSIBLE READING. By the time Whitmore produced his FIRST usable pressure measurement of 1.0"WG, you could LITERALLY fly a kite in the 45 MPH winds that would exist between the various floors.

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12. Additionally, as the previous paragraph discloses, I want to maintain a "neutral" floor-to-floor "pressure" relationship. This means that various floors will CONSTANTLY fall BELOW this goal, which means a "NEGATIVE" pressure MUST be measured. ALL of the pressure differentials that the Whitmore "diaphragm" can measure are POSITIVE. What would happen when he encountered a NEGATIVE floor-to-floor "comparison". He would NEVER know it. He would automatically assume it was a POSITIVE relationship and make an already BAD problem worse. I have "seen" this occur when

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5 using sensors that could NOT detect a POSITIVE "pressure" reading from a NEGATIVE "pressure" reading. My scheme MUST know WHETHER the relationship of the floors is NEGATIVE or POSITIVE, BEFORE the "controller" decides what corrective actions to take. Whitmore's "ideas" would FAIL to "accurately" provide "INTERNAL BUILDING PRESSURE MEASUREMENT OR CONTOL".

10 13. In light of the above THREE numbered paragraphs, I hereby declare that the pressure transducer that includes the Whitmore "diaphragm" as described in his patent, could NEVER be used in an "INTERNAL BUILDING PRESSURE APPARATUS AND METHOD", that I am teaching. His "diaphragm", will cause more DAMAGE and PROBLEMS, than SOLUTIONS.

15 14. As stated previously, Whitmore's "theory" involving "pumping" air back down to the lower floors, from the upper floors, would just spread contaminants, odors, humidity, gases, biologicals, viruses, bacteria, mold, mildew, diseases, flu and temperatures between the floors involved. THIS IS EXACTY WHAT ACCURATE "INTERNAL BUILDING PRESSURE CONTROL", MUST PREVENT, NOT ENCOURAGE.

20 15. Plus, just SIMPLY "pumping" air around within the same multi-floor building "vessel", might solve a "temperature" problem within the "vessel", BUT it will NEVER do ANYTHING to SOLVE a SINGLE "pressure" problem within the same "vessel". To SOLVE a "pressure" problem within a 25 "vessel", air MUST be either "added" or "removed" from the "vessel", and NOT just SIMPLY "pumped" around within the SAME "VESSEL", as Whitmore "theorizes". Would simply "pumping" air around WITHIN a tire with "low air pressure", solve the problem? NO.

16. As stated in previous arguments in this filing, the upper floors of buildings are already suffering from DRAMATIC losses of air through "exfiltration". Whitworth's "theory" of "pumping" air from these upper floors down to the lower floors, would just exacerbate an already BAD, NEGATIVE pressure situation on these upper floors and cause MORE problems than it would solve.

17. To COMPLETELY SOLVE a problem, one MUST FIRST COMPLETELY understand the TRUE problem. Up until that MOMENT one is ONLY "treating" the SYMPTOMS of the TRUE PROBLEM. Which is EXACTLY what ASHRAE, Mr. Lstiburek, Mr. Whitmore, Mr. Hartenstein and ALL BEFORE ME are doing. I offer the COMPLETE CURE for ALL of the problems they are encountering.

18. ALL of the arguments against Whitmore, in this filing, accumulate into the obvious FACT that "WHITMORE KNOWS NOTHING ABOUT INTERNAL BUILDING PRESSURE MEASUREMENT AND CONTROL", in multiple floor buildings. Even his own words NEVER disclose a floor-to-floor "pressure control" scheme, as I claim. He might understand something about "temperature control", and this is ALL his "theory" involves. His "temperature control" "theory" could NEVER be used to develop an ACCURATE "INTERNAL BUILDING PRESSURE APPARATUS AND METHOD", as Applicant claims. In light of 35 U.S.C. § 102, and 35 U.S.C. § 103, Whitmore FAILS to establish ANY "prior art" on the issue.

Applicant has reviewed ALL of the above articles, plus over 100 others and other that the "temperature remediation" "theory" proposed by Whitmore, finds NOT A SINGLE reference to "providing at least one pressure sensor on at least two of said multiple floors"; NOR did Applicant

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EVER find ANY words similar to "connecting to the pressure sensors"; and NEVER "attaching an analyzer to said pressure sensors for receiving input from said pressure sensors and comparing at least one pressure reading from one floor with another pressure reading from at least one of the other multiple floors of said building", as I claim. Please show me a single sentence in one of these articles that refutes my assertion.

Applicant respectfully request that Examiner again "google" "building pressure and its effect on indoor air quality" and read several more of those 1,970,000 articles. Almost ALL of them point to the need for a fast and accurate "INTERNAL BUILDING PRESSURE APPARATUS AND METHOD", which is what the Applicant has invented and is now teaching, through this NEW, NOVEL and NON-OBVIOUS, patent at hand. If Whitmore had established the "state of the art" for an "INTERNAL BUILDING PRESSURE APPARATUS AND METHOD", then at least ONE of these problem buildings WOULD have employed it. BUT NO ONE DID. The ONLY way to overcome these pressure forces, is to "measure", "analyze" and "control" them, EXACTLY as I am claiming, ONE FLOOR AT A TIME. The "delay" involved with the SINGLE interior sensor employed by ASHRAE on multiple floor buildings, dooms their scheme to FAILURE.

**APPLICANT ESTABLISHES THE "PRIOR ART" FOR "INTERNAL BUILDING PRESSURE APPARATUS AND METHOD"**

Applicant feels he MUST establish the "prior art" concerning an "INTERNAL BUILDING PRESSURE APPARATUS AND METHOD", in order to move this patent through the process. The attached eleven pages of exhibits marked P-Z (pages 79-89), are all that ASHRAE says about "internal building pressure control". In ALL cases ONLY a SINGLE "internal" pressure sensor is mentioned, as discussed in the marked paragraphs along with figure 4 on exhibit T (page 83), plus figure 8 on exhibit U (page 84). ASHRAE

is the World leader in "pressure control", and they repeated say that ONLY a SINGLE "internal" pressure sensor is required to determine "internal" building pressure. They are WRONG.

5 I ask the simple question "which floor do you mount this SINGLE 'interior' pressure sensor on"? The 18<sup>th</sup> floor, maybe the 1<sup>st</sup> or could it be the 6<sup>th</sup>? There is NO correct answer. The "internal" pressure on the 18<sup>th</sup> floor can NEVER be accurately related to the "internal" pressure on the 1<sup>st</sup> floor, or the "internal" pressure of ANY OTHER floor, UNLESS said other floor has ANOTHER "internal" pressure sensor installed on it, as I claim. If Whitmore  
10 HAD established the "state-of-the-art" for "internal building pressure measurement and control", then ASHRAE, Mr. Hartenstein and Mr. Lstiburek would have CLEARLY employed it.

15 This is why Mr. Lstiburek opened the floors above and below the floor he was measuring, to OUTDOORS, and ALWAYS "compared" interior floor pressures to OUTDOORS, or to a pressure reading from another part of the **SAME** floor. ASHRAE'S teachings, limited Mr. Lstiburek's view of the situation. He did go further than ASHRAE, by employing more than a SINGLE indoor "pressure" sensor, but then ONLY "comparing" the readings to OUTDOORS, or to a pressure reading from another part of the **SAME**  
20 floor, doomed his ideas to FAILURE, for the reasons mentioned previously. That is why, at the end of the day, he HAD to use VOLUMES to "control" the "pressures" of the various floors, and NOT, DIRECT FLOOR-TO-FLOOR PRESSURE MEASUREMENTS, as I claim. ASHRAE NEVER compares the 'internal' pressure of one floor to the 'internal' pressure of another floor, as  
25 I claim. So Mr. Lstiburek NEVER compares the 'internal' pressure of one floor to the 'internal' pressure of another floor. He NEVER thought ANYTHING ELSE was needed, or possible, or he would have done it. ASHRAE's teachings will ONLY, ACCURATELY, "measure" and/or "control" the pressure of single floor buildings, which is why I am teaching a



method and apparatus that involves "buildings with MULTIPLE floors", that is NEW, NOVEL and NON OBVIOUS.

5 The REAL TRUTH about how ASHRAE views pressurizing ALL of the floors "UNIFORMLY", as I state is necessary on page 5, lines 5-13, of my original patent application, are CLEARLY stated on page 27.8 of the 2005 ASHRAE Handbook on Fundamentals, please see the marked lines of attached exhibit Z (page 89). ASHRAE says " Pressurizing all levels uniformly has little effect on the pressure differences across floors and vertical shaft enclosures". They are inferring that pressurized floors will NOT solve any pressure problems between the various floors. Maybe this is why NO ONE has attempted to measure or control the floor-to-floor "pressures" by "comparing" them, as I claim. ASHRAE goes on to say "Pressurizing the ground level is often used in tall buildings to reduce stack pressures across entries". This is just SIMPLY treating ONE, SYMPTOM of a building wide "pressure" imbalance, that is preventing entry doors from "opening" or "closing" properly. This is the ONLY, SINGLE, FLOOR that ASHRAE, EVER says should be purposefully pressurized. This is why they say that ONLY a SINGLE "interior pressure sensor is required". They NEVER say that this should then be compared to ANY OTHER FLOOR, but instead ONLY TO OUTDOORS.

20 More important MISCONCEPTIONS are contained on this same ASHRAE page, when they say "If mechanically supplied outdoor air is provided uniformly to each story, the change in the exterior wall pressure difference pattern is uniform". ASHRAE has taken an extremely "STATIC" view, of a dramatically "DYNAMIC" situation. This is simply WRONG.

25 ASHRAE is INCORRECTLY assuming that ALL of the OTHER "pressure" influences on the exterior walls and between the various floors, remain the SAME, regardless of the number of floors, or the height to the building, or changes in wind velocity, or surrounding structures. By these words, ASHRAE is asserting that the air being "infiltrated" and "exfiltrated" from

ALL of the floors, even the upper floors, somehow, MYSTERIOUSLY, STAYS THE SAME. FOREVER. ONCE, "some undetermined" amount of "outdoor air" is mechanically supplied to the floors "uniformly". No wonder they didn't bother to think about, measuring, or controlling, the floor-to-floor "pressure" relationships.

My research PROVES that the "pressure" influences on the exterior walls changes DRAMATICALLY, SECOND BY SECOND, FROM FLOOR TO FLOOR, AND FROM A PART OF A FLOOR TO ANOTHER PART OF THE SAME FLOOR. I ALSO "LEARNED" THAT THIS "PRESSURE" INFLUENCE WILL BE TRANSMITTED TO **ALL** OF THE OTHER FLOORS OF MULTIPLE FLOOR BUILDINGS, THEREBY GENERATING A TRULY 'DYNAMIC' SITUATION THAT CAN **ONLY** BE CONTROLLED SECOND BY SECOND, AND INDIVIDUAL FLOOR BY INDIVIDUAL FLOOR, as I claim. ASHRAE's SIMPLISTIC SOLUTIONS ARE COMPLETE FAILURES.

Mr. Lstiburek, BELIEVED ASHRAE's above statement, per the marked lines on attached exhibit F (page 69) and his figure 7. Further proof that he is a good ASHRAE "company" man, that stays within the ASHRAE "box". This is also further PROOF that NO ONE COMPLETELY UNDERSTOOD THE TRUE PROBLEM, SO THEY ARE ALL JUST TREATING "SYMPTOMS" OF THE REAL PROBLEM. NO wonder there are 1,970,000 articles linking poor indoor air quality with "building pressure" problems. ASHRAE's, LIMITED and INCORRECT view of "building pressure" LIMITED EVERYONE BUT ME, from seeing the TRUE CAUSE and then the TRUE CURE, for ALL "building pressure" problems.

ASHRAE and Mr. Lstiburek are just more examples of EXACTLY what ALL before me have done, and they have ALL, FAILED, EVERY TIME, to accurately determine/measure/read the actual, real time, "internal" pressure of a building "with multiple floors". ALL of these types of systems must actually "wait" until the ENTIRE, MULTIPLE FLOOR, building "inflates" or

"deflates", as the various floors "transmit" their EVER CHANGING "pressure influence" THROUGHOUT the building. BEFORE, they can "see" a change in actual "internal" building pressure, and then react to it.

5 Their normal time to response, using this "comparison" scheme to outdoors on a multiple floor building, is approximately 600 seconds, due to the delay in building "inflation" and "deflation". My ideas concerning "dynamic" pressure sensors, as claimed in this patent at hand along with my granted patents, allow me to respond to ANY and ALL changes in "internal building pressure", EVERY TWO TENTHS, OF EVERY SECOND, OF 10 EVERY HOUR, OF EVERY DAY, OF EVERY YEAR. This makes me approximately 3,000 times faster than ANYONE before me. This simple FACT alone, allows me to be the FIRST, to be able to actually "see/measure", respond to and continuously correct for, ANY change in "internal building pressure", AS IT IS ACTUALLY OCCURRING.

15 By utilizing standard pressure sensors in a "floor-to-floor comparison scheme", as I am also claiming in this patent at hand, my response time will be approximately 10 seconds, "for a floor", and the SAME 10 seconds for a "portion of a floor", and the SAME 10 seconds for the "building as a whole". My delay is much shorter than those before me, because I only 20 have to "wait" for JUST AN INDIVIDUAL FLOOR to "inflate" or "deflate". This makes me approximately 60 times faster than the CURRENT, ASHRAE , SINGLE 'internal' building pressure sensor scheme.

25 ASHRAE's approximately 600 second comparison scheme for multiple floor buildings, DOOMS, ALL those before me to attempting to correct an INITIAL "internal" building pressure challenge, that has already CHANGED, BEFORE, they EVER had ANY way of knowing of that INITIAL challenge. OR IT'S SIZE. Because their ideas are so SLOW. Their "delay" is a DIRECT result of having to "wait" until the air reaches some form of "equilibrium" within the building vessel. NONE of my granted patents, NOR

this patent at hand suffer from this same "delay".

5 ALL of these OTHER schemes eventually end up creating pressure  
"waves" and challenges within the building, that they must then attempt  
to overcome, 600 seconds later. They eventually create as many  
"internal" building pressure problems and challenges, as they are TRYING  
to solve. They ALL in FACT, become "cats chasing their own tails", and  
TOTALLY FAIL to achieve accurate, real time, "internal" building pressure  
control. Most other suppliers in the Building Pressure Control Industry, have  
gone on to even longer response times, of ONE HOUR or MORE, in a  
10 FAILED attempt to stop the very pressure "waves", that they are creating

I am the ONLY person attempting to patent internal building  
pressure measurement and control systems, CURRENTLY operating at TWO  
TENTHS OF A SECOND to 10 SECONDS. So, ONLY my systems can react to  
actual, real time changes in "internal" building pressure. To react this fast, I  
15 am extremely concerned and interested in "choosing from a group of  
pressures including: per wall, per floor, per wall of a floor and for the  
building as a whole". ASHRAE, NEVER, ONCE, mentions measuring the  
"pressure" of the various "floors", in their Standards or Handbooks, much  
less "a particular floor", or the "wall of a particular floor", or "a portion of a  
20 floor".

Plus, ASHRAE, NEVER mentions "providing at least one pressure  
sensor on at least two of the multiple floors"; NOR did Applicant EVER find  
ANY words similar to "connecting to the pressure sensors"; and NEVER a  
SINGLE reference to "attaching an analyzer to said pressure sensors for  
25 receiving input from said pressure sensors and comparing at least one  
pressure reading from one floor with another pressure reading from at  
least one of the other multiple floors of a building", as I claim. Please show  
me a single sentence in one of these ASHRAE Handbooks, that refutes my  
assertion.

This is unequivocal PROOF that all before me, have either  
MISTAKENLY thought that the "internal" areas of buildings resided at a  
UNIFORM pressure, NATURALLY, regardless of the number of floors  
involved. Or ,their misconceptions of the problems associated with  
"internal" building pressure, left them unable to determine a solution, as I  
state on page 2, lines 15-21, plus page 3, lines 1-6, in my application.  
Along with the paragraphs that I added to the "BACKGROUND OF THE  
INVENTION". They are ALL WRONG. Mr. Lstiburek and ALL of these  
Handbooks and the included statements by ASHRAE, come from the work  
of committees of experts in the field of "pressure", published AFTER I filed  
the patent at hand. In fact, as of TODAY, ASHRAE still ONLY says that a  
SINGLE "internal" building pressure sensor, is ALL that is required.

If ANYONE was going to call for more than a SINGLE "internal"  
building pressure sensor, it would have been the "experts" of ASHRAE. I  
know all about ASHRAE. I **was** an ASHRAE member for twenty something  
years and I have been on two of these ASHRAE Standards Committees,  
that wrote parts of these ASHRAE's Handbooks. "Environmental Health" for  
three years and "Dehumidification" for two years. I have spoke at four  
different ASHRAE National Meetings on many topics, including "building  
pressure control". I hereby declare that I have NEVER been involved in  
ANY ASHRAE Standards Committee, or ANY ASHRAE Committee of ANY  
kind, concerning "BUILDING PRESSURE", or an "INTERNAL BUILDING  
PRESSURE APPARATUS AND METHOD", or ANY kind, shape or form.

I have been in the "building pressure control" business for the past  
28 YEARS and I hereby declare that I have NEVER seen ANYONE else  
monitor, or measure, the pressure of one floor and then compare it to ANY  
pressure of another floor, much less use the information gathered to  
control/regulate the pressure of one floor against the pressure of another  
floor. I hereby declare that I discovered how valuable a tool this would be

on October 22, 2002, while reviewing data from a Ciba Specialty project in McIntosh, Alabama, involving humidity control and my patented "building pressure measurement" systems. I originally thought that measuring the "dynamic pressure" as it passed through the "skin" of a building, was ALL that was needed. But in 2002, I "learned" the NEW, NOVEL and NON OBVIOUS, ideas taught by this patent at hand.

I researched this issue for the next SIX MONTHS and found NO ONE else teaching it. I filed this patent at hand within the one year statutory period, beginning on October 22, 2002. I hereby declare that I lost most of my research data when two walls were blown out of my office building at 400 Gulf Breeze Parkway, Suite 206, Gulf Breeze, Florida, during hurricane IVAN on September 15, 2004.

I even spent valuable time and money to personally travel to TSI, INC. in Minneapolis, Minnesota in April of 2003 to ask them face-to-face, if they had ever monitored or measured the pressure of one floor and then compared it to the pressure of another floor, and if they had ever used the information gathered to control/regulate the pressure of one floor against the pressure of another floor, using this comparison scheme. There were five of their top people in this meeting and the unanimous reply was NEVER.

TSI is the company that currently manufactures "building pressure measurement" systems that implement the ideas taught by my granted United States patents. TSI, is in my opinion, the absolute best pressure sensor manufacturer in the World, with their elegant thermal anemometer device and digital control network.

I feel the second best pressure sensor manufacturer in the World is Tek-Air Systems, Inc., in Danbury, Connecticut, with their "vortex shedding" device. In June of 2003, I spent more valuable time and money to personally travel to Tek-Air Systems. I made this trip in my Cobra

convertible (which I also lost to hurricane IVAN) with a personal friend, Mr. Victor Neuman, P. E., (619-865-8235) a Cambridge educated Mechanical Engineer, who has patiently listened to all my "pressure measurement and control" theories, over the years. Victor is a very active ASHRAE member and on several of their Standards Committees. Victor has been very involved in the design of Laboratory projects that involved "building pressure control", and spoke many times at ASHRAE National Meetings.

I asked three of Tech-Air's top people and Mr. Neuman, along with another Tech-Air regional employee, Paul Pinkston, that formally worked in Air Monitor's "building pressure measurement" division, linked in on a hands free phone connection, person-to-person, if they had ever monitored or measured the pressure of one floor and then compared it to the pressure of another floor, and if they had ever used the information gathered to then control/regulate the pressure of one floor against the pressure of another floor, using this comparison scheme. The unanimous reply was NEVER. They all thought it was a good idea.

This is further proof that there is NO CURRENT "STATE OF THE ART", concerning the patent at hand. All of the above can be proven with receipts and the direct testimony of those involved.

The correct answer is that to accurately measure the "internal" pressure of a building, an "internal" pressure sensor is required on at least two floors, of multiple floor buildings, and then "COMPARED", as claimed by the Applicant, in the patent at hand. This SIMPLE FACT separates me from ALL before me and is the definitive proof that my ideas are NEW, NOVEL and NON OBVIOUS.

As further proof that my ideas are new, novel and non obvious, is my discovery that approximately three to seven percent of a building's volume, in outdoor air, MUST be introduced EVERY MINUTE OF EVERY DAY

(CFM) into a building, to pressurize it to just a 0.01 inch water gauge "positive" pressure. Ten to seventeen percent of a building's volume is required to accomplish a 0.10 inch "positive" pressure. The existing ASHRAE recommendation is to introduce just ten percent more outdoor air into a building, than is being exhausted. This was an extremely naïve decision by ASHRAE. I personally can not imagine how they chose this number. I find NO basis in reality, or volumetric mathematics, that supports it. My research and practical application, have proven it TOTALLY INSUFFICIENT and WRONG.

My research has shown that ALL "standard" air conditioning, heating and ventilation units MUST be able to handle up to 75% outdoor air and 25% return air, and produce a 52°F dewpoint/55°F dry bulb, supply air temperature, even in the hottest and most humid climates, if they are to be used to adequately "pressurize" buildings and prevent mold and mildew in the building's "skin". This could be accomplished with eight row cooling coils operating at 340 FPM. Currently, Trane, Carrier, McQuay, etc..., build ALL of their "standard" air conditioning, heating and ventilation units to ASHRAE Energy and Performance Standards that ONLY allow them to handle around 20% outdoor air, or LESS in humid climates. So, my ideas as taught will require that ALL air conditioning manufacturers "retool" to handle these NEW, INCREASED, outdoor air requirements. This MAJOR change alone will require years to implement. ASHRAE's, additional 10% outdoor air over exhaust air rule, has resulted in DEFORMING the performance of an ENTIRE Industry.

Plus, it will be fairly easy to adapt my pressure sensors and control systems to existing buildings and their existing control systems, I have already done this with Johnson and Honeywell. But in most cases, it will be EXTREMELY difficult to modify the building's air conditioning system and duct system, to allow accurate "building pressure control". Again, years of



practical application of ASHRAE'S "MINIMUM" recommendations, have made it EXTREMELY difficult, if not IMPOSSIBLE, to modify existing buildings to allow practical and accurate "building pressure control". Smaller buildings and stand alone Military structures can more easily be adapted.

5 I have successfully designed and installed over 20 systems in existing Chemical Plant, stand alone buildings. But in all HONESTY, most buildings will be extremely difficult to modify. Requiring an EXTREME commitment from ASHRAE and it's associated Industry, that I do NOT see occurring.

10 Buildings that introduce the quantities of properly conditioned outdoor air that I recommend, will have FAR SUPERIOR INDOOR AIR QUALITY and experience DRAMATICALLY REDUCED spreads of mold, mildew and contagious diseases (SARS, BIRD FLU, EVEN THE COMMON COLD, etc...), than buildings that have applied the ASHRAE "MINIMUM" Outdoor Air Standards. ESPECIALLY HOSPITALS. By SIMPLY pulling the  
15 required outdoor air from 75+ FEET above the ground (I used EPA data to determine this height), I assert that ONLY the ideas that I teach, could protect EVERYONE, in EVERY commercial building, in America, from a Chemical, Biological and Radiological (dirty bomb) attack. But I see an ENTIRE Industry heading in the WRONG DIRECTION. I ask WHY are we  
20 designing EVERY building we LIVE in and WORK in, to ASHRAE "MINIMUM" Standards? Some of which are based on WRONG assumptions. So, I personally may NEVER make much money from all my Patent work and research, and all the while, America remains vulnerable to attack.

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#### **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

Applicant feels he needs to include a two page INFORMATION DISCLOSURE STATEMENT, to cover the items referred to in this response. ALL but the ASHRAE data and Whitmore patent, were supplied by the Examiner. The Barcol-Air data titled "Air Pressure and Building Envelopes"

was addressed on pages 29-31 of this response, and are included with this filing. The applicable pages of the Lstiburek thesis, titled "Air Pressure and Building Envelopes", were addressed on pages 31-40 and are attached to this response, as exhibit's A-O (pages 64-78).

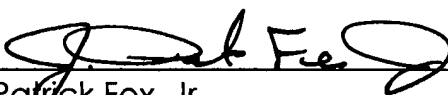
5 The Whitmore, U. S. patent number 4,606,228, published on August 19, 1986, was addressed on pages 45-52, of this response. I hereby declare that the ASHRAE Handbooks were first reviewed by the Applicant on April 4, 2006 and addressed on pages 52-59 and are attached to this response, as exhibits P-Z (pages 79-89). I did not disclose this ASHRAE data earlier  
10 because I honestly thought that their "teachings" were common knowledge, that did not need to listed.

15 It is for these reasons and more, that the ideas expressed and claimed in this patent are NEW, NOVEL and NON OBVIOUS and should be granted. Please feel free to contact me with any questions concerning this letter or any other questions that arise.

Applicant respectfully request that this patent be granted, as amended.

Respectfully submitted,

Dated: JUNE 16, 2006

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